

WHAT IS CLAIMED AS NEW AND IS INTENDED TO BE SECURED BY LETTERS PATENT IS:

1. A mold for producing a silicon ingot having a layered structure comprising an inner silica layer containing at least one layer in which a fused silica powder with a particle size of 100 μm or less and a fine fused silica sand with a particle size of 100-300 μm is bonded with a silica binder, and an outer silica layer containing at least one layer in which a fused silica powder with a particle size of 100 μm or less and a coarse fused silica sand with a particle size of 500-1500 μm is bonded with a silica binder.

2. A mold for producing a silicon ingot according to Claim 1, wherein the wall face of the inner shape of the mold for producing a silicon ingot is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area.

3. A mold for producing a silicon ingot according to Claim 1 having an inner space whose horizontal cross section assumes a circle or a polygon.

4. A mold for producing a silicon ingot according to Claim 1, wherein the wall face of the inner shape of the mold for producing a silicon ingot is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area and the mold has an inner space whose horizontal cross-section assumes a circle or a polygon.

5. A method for fabricating a mold for producing a silicon ingot having an inner silica layer and an outer silica layer comprising the steps of:

forming a slurry layer on the surface of a wax mold by immersing, followed by lifting up, the wax mold having the same shape as that of the inner shape of the mold for producing a silicon ingot into a slurry comprising a fused silica powder and colloidal silica, followed by forming an inner stucco layer by sprinkling a fine fused silica sand with a particle size of 100-300 μm on the surface of the slurry layer;

forming an outer stucco layer on the inner stucco layer by sprinkling coarse fused silica sand with a particle size of 500-1500 μm on the surface of the slurry layer after forming the slurry layer by further dipping, followed by lifting up, the wax mold on which the inner stucco layer has been formed into a slurry comprising the fused silica powder and colloidal silica; and

5 heat-melting and eliminating the wax mold followed by baking the inner stucco layer and outer stucco layer.

6. A method for fabricating a mold for producing a silicon ingot having an inner silica layer and an outer silica layer comprising the steps of:

10 forming a slurry layer on the surface of a wax mold by dipping, followed by lifting up, a wax mold having the same shape as that of the inner shape of the mold for producing a silicon ingot into a slurry comprising a fused silica powder and colloidal silica, at least one layer of an inner stucco layer being formed by applying at least one process for forming the inner stucco layer by sprinkling a fine fused silica sand with a particle size of 100-300 μm on the surface of the slurry layer;

15 forming at least one outer stucco layer on the inner stucco layer by applying at least one process for forming an outer stucco layer by sprinkling the coarse fused silica sand with a particle size of 500-1500 μm on the surface of the slurry layer after forming the slurry layer by further dipping, followed by lifting up, the wax mold on which the inner stucco layer has been formed into a slurry comprising the fused silica powder and colloidal silica; and

20 heat-melting and eliminating the wax mold followed by baking the inner stucco layer and outer stucco layer.

7. A method for fabricating a mold for producing a silicon ingot according to Claim 5 or 6, wherein the wall face of the wax mold is tapered from the bottom toward the top so that the

top area becomes larger than the bottom area.

8. A method for fabricating a mold for producing a silicon ingot according to Claim 5 or 6, wherein the wax mold has a horizontal cross section assuming a circle or a polygon.

5 9. A method for fabricating a mold for producing a silicon ingot according to Claim 5 or 6, wherein the wall face of the wax mold is tapered from the bottom toward the top so that the top area becomes larger than the bottom area and the wax mold has a horizontal cross-section assuming a circle or a polygon.

10 10. A mold for producing a silicon ingot in which an inner silica layer containing a fine fused silica sand with a particle size of 100-300 μm is formed on the inner surface of a graphite mold or quartz mold.

11. A mold for producing a silicon ingot in which an inner silica layer containing at least one layer prepared by binding a fused silica powder with a particle size of 100 μm or less and fine fused silica sand with a particle size of 100-300 μm with a silica binder is formed on the inner surface of a graphite mold or quartz mold.

15 12. A mold for producing a silicon ingot in which an outer silica layer containing a coarse fused silica sand with a particle size of 500-1500 μm is formed on the inner face of a graphite mold or a quartz mold, an inner silica layer containing a fine fused silica sand with a particle size of 100-300 μm being formed on the inner side of the outer silica layer.

20 13. A mold for producing a silicon ingot in which an outer silica layer containing at least one layer prepared by joining fused silica powder with a particle size of 100 μm or less and coarse fused silica sand with a particle size of 500-1500 μm with a silica binder is formed on the inner face of a graphite mold or quartz mold, an inner silica layer containing at least one layer prepared by joining the fused silica powder with a particle size of 100 μm or less and fine fused

silica sand with a particle size of 100-300 μm with a silica binder being formed on the outer silica layer.

14. A mold for producing a silicon ingot according to Claim 10, 11, 12 or 13, wherein the wall face of the mold for producing a silicon ingot is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area.

15. A mold for producing a silicon ingot according to Claim 10, 11, 12 or 13, wherein the horizontal cross section of the mold for producing a silicon ingot has an inner space assuming a circle or a polygon.

16. A mold for producing a silicon ingot according to Claim 10, 11, 12 or 13, wherein the wall face of the mold for producing a silicon ingot is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area and the horizontal cross section of the mold has an inner space assuming a circle or a polygon.

17. A method for fabricating a mold for producing a silicon ingot, wherein a stucco layer is formed by sprinkling, followed by baking, a fine fused silica sand with a particle size of 100-300 μm on the surface of a slurry layer after forming the slurry layer on the inner face of the graphite mold or the quartz mold by coating or spraying the slurry comprising fused silica powder with a particle size of 100 μm or less and colloidal silica.

18. A method for fabricating a mold for producing a silicon ingot comprising the steps of:

forming an outer stucco layer by sprinkling a coarse fused silica sand with a particle size of 500-1500 μm on the surface of a slurry layer after forming the slurry layer on the inner face of the mold by coating or spraying a slurry comprising the fused silica powder with a particle size of 100 μm or less and colloidal silica on the inner side of a graphite mold or a quartz mold; and

forming a stucco layer by sprinkling, followed by baking, a fine fused silica sand with a particle size of 100-300 μm on the surface of the slurry layer after forming the slurry layer by further coating or spraying the slurry comprising fused the silica powder with a particle size of 100 μm or less and colloidal silica on the outer stucco layer.

5 19. A method for fabricating a mold for producing a silicon ingot according to Claim 17 or 18, wherein the inner wall face of the graphite mold or the quartz mold is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area.

10 20. A method for fabricating a mold for producing a silicon ingot according to Claim 17 or 18, wherein the horizontal cross-section of the graphite mold or the quartz mold assumes a circle or a polygon.

15 21. A method for fabricating a mold for producing a silicon ingot according to Claim 17 or 18, wherein the inner wall face of the graphite mold or the quartz mold is tapered from the bottom toward the opening so that the opening area becomes larger than the bottom area and the horizontal cross-section of the graphite mold or the quartz mold assumes a circle or a polygon.